

What is claimed is:

1. A process for producing surfaces with self-cleaning properties by applying particles to the surface and securing the particles within the surface, thus forming elevations whose separation is from 20 nm to 100 μm and whose height is from 20 nm to 100 μm , which comprises

applying the particles through spray-application of the particles by means of a hot air stream whose temperature softens the material of the surface to be treated to a degree such that at least part of the periphery of the particles can penetrate the material of the surface, and such that the particles which have penetrated, at least to some extent, the material of the surface, are secured within the surface on cooling of the substrate.

2. The process as claimed in claim 1,
20 wherein

the material of the surface has been selected from thermoplastics, or from low-melting-point metals or alloys selected from tin, lead, Wood's metal, gallium, or soft solder.

25 3. The process as claimed in claim 1 or 2,
wherein

the surface is the surface of a film, of a three-dimensional article, or of a molding.

30 4. The process as claimed in at least one of claims 1 to 3,
wherein

the hot air stream is produced electrically or by
35 combustion of combustible gases.

5. The process as claimed in at least one of claims 1 to 4,

wherein

the particles are added to the air stream before or after it is heated.

5 6. The process as claimed in at least one of claims 1 to 5,

wherein

use is made of particles whose surface has an irregular fine structure in the nanometer range.

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7. The process as claimed in at least one of claims 1 to 6,

wherein

15 use is made of particles whose average particle diameter is from 0.02 to 100 μm .

8. The process as claimed in claim 7,

wherein

20 use is made of particles whose average particle diameter is from 0.1 to 30 μm .

9. The process as claimed in at least one claims 1 to 8,

wherein

25 use is made of particles selected from silicates, minerals, metals oxides, metal powders, silicas, pigments, HT polymers.

10. The process as claimed in at least one of claims 1 to 8,

wherein

use is made of particles selected from fumed silicas, precipitated silicas, aluminum oxide, silicon dioxide, doped silicates, and pulverulent HT polymers.

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11. The process as claimed in at least one of claims 1 to 10,

wherein

the particles are equipped with hydrophobic properties through treatment with at least one compound selected from the group consisting of the alkyl silanes, fluoroalkyl silanes, and disilazanes.

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12. A self-cleaning surface produced by means of a process as claimed in at least one of claims 1 to 11.

10 13. The surface as claimed in claim 12,
which

has elevations formed from particles, where the elevations have a separation from 20 nm to 100 µm and a height of from 20 nm to 100 µm.

15 14. The surface as claimed in claim 12 or 13,
which

is the surface of a textile, of a film, of a three-dimensional article, of a molding.

20 15. The use of the process as claimed in any of claims 1 to 11 for the coating of articles exposed to high levels of contamination by dirt and water, in particular for the outdoor sector, ski sports, alpine sports, motor sports, motorcycle sports, motocross
25 sports, sailing sports, textiles for the leisure sector, or for coating technical textiles selected from tenting, awnings, umbrellas, table covers, cabriolet covers, and workwear.

30 16. An article with a surface as claimed in any of claims 12 to 14,

which encompasses films, consumer articles, sports items, textiles, clothing, and moldings.